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1961

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Cooperative Extension, South Dakota State University

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*Cooperative Extension Service*

# Control Grasshoppers with Insecticides

## CONTROL GRASSHOPPERS WITH INSECTICIDES

Many insecticides will control grasshoppers—malathion, aldrin, chlordane, dieldrin, heptachlor, and toxaphene. The choice of chemical will depend upon the crop or situation where used, the required waiting period, and local availability.

On pastures and forages, care must be taken, especially when treated plants are to be fed to milk animals or those being finished for slaughter. Forage treated with insecticides should not usually be sold commercially or shipped interstate, unless required waiting periods have been observed.

Rates of application given here include a lower and upper range. These are expressed in terms of actual insecticide per acre. Use lower rates on young, newly-hatched grasshoppers in short, dense, and leafy vegetation. Use the higher dosages in tall and dense vegetation when the 'hoppers are full grown, if the vegetation is dry, or when the temperatures are high.

These chemicals are usually available in different formulations—oil solutions, emulsifiable concentrates, wettable powders, and dusts. In the average low volume, low gallonage farm sprayer, use only the emulsifiable form. The principal emulsion formulations and amounts to use per acre are given in Table 1. Oil solutions may be diluted with an oil such as kerosene fuel and are used mainly in airplane spray equipment. Wettable powders are designed for use in high gallonage, high pressure sprayers with mechanical agitation. The dust forms are to be used in dusters and applied dry.

### GRASSHOPPER CONTROL ON FIELD CROPS

#### Corn and sorghum.

Aldrin—2 to 4 ounces of actual ingredient per acre.

Dieldrin—1 to 2 ounces of actual ingredient per acre.

Toxaphene—1 to 1½ pounds of actual ingredient per acre.

With aldrin, apply the 2 ounce dosage at least 21 days or the 4 ounce dosage at least 30 days before harvest or cutting for ensilage. With dieldrin, apply at least 40 days before harvest or cutting for ensilage. Do not feed forage treated with toxaphene to dairy animals or animals being finished for slaughter.

#### Small grains (wheat, oats, rye, barley, flax).

Aldrin—2 to 4 ounces of actual ingredient per acre.

Dieldrin—1 to 2 ounces of actual ingredient per acre.

By William M. Hantsberger, Extension Entomologist

Toxaphene—1 to 1½ pounds of actual ingredient per acre.

With aldrin, apply at least 7 days before harvest (14 days for barley). Do not feed treated straw within 30 days of application. With dieldrin, apply at least 7 days before harvest (14 days for barley). Do not feed treated straw within 30 days of application. With toxaphene, do not feed treated straw to dairy animals or animals being finished for slaughter.

#### Soybeans.

Aldrin—2 ounces of actual ingredient per acre.

Dieldrin—¾ to 1 ounce of actual ingredient per acre.

Toxaphene—1 to 1½ pounds of actual ingredient per acre.

With aldrin, apply at least 30 days before feeding as forage. With dieldrin, be sure to treat at least 35 days before feeding as forage. Again, do not feed forage treated with toxaphene to dairy animals or animals being finished for slaughter.

Most grasshoppers attack cultivated crops from field margins, conservation reserve acreages, fence rows, and roadsides where eggs were deposited. You will get the most satisfactory and economical control by spraying these sources of infestations before the insects move into the field. Spray just after the hatch is completed while the grasshoppers are still very small and concentrated. These areas may also be sprayed in the fall when the 'hoppers are concentrating to lay eggs, but full-grown 'hoppers are harder to kill than young ones.

If the grasshoppers have spread into a field from one or more edges, control them by spraying the invaded area plus a band several yards wide beyond the line of advance. If the insects have spread all through a field, then you must treat the whole field.

## TREATING ALFALFA AND CLOVER FORAGE

Dieldrin— $\frac{3}{4}$  to 1 ounce of actual ingredient per acre.

Malathion—15 to 20 ounces of actual ingredient per acre.

With dieldrin, do not apply after alfalfa is more than 6-8 inches high or to clover after it is more than 2 inches high. Always apply at least 35 days before cutting or grazing. Put on malathion at least 7 days before cutting or grazing.

In alfalfa, eggs are frequently laid throughout the field. These eggs usually hatch about the time the first hay crop is cut. If serious infestations of grasshoppers develop in hay fields before harvest, cut the hay and leave a few uncut "trap strips" in the field. After the grasshoppers move into the trap strips, treat the strips with dieldrin but do not cut the trap strips for hay.

## KILLING 'HOPPERS ON PASTURES AND RANGES

Aldrin—2 to 4 ounces of actual ingredient per acre.

Toxaphene—1 to 1 $\frac{1}{2}$  pounds of actual ingredient per acre.

Heptachlor—2 to 3 ounces of actual ingredient per acre.

Malathion—15 to 20 ounces of actual ingredient per acre.

With aldrin, do not graze dairy animals or animals being finished for slaughter within 12 months. With toxaphene, do not graze dairy animals. Beef animals may be grazed without interval between feeding and slaughter unless they have received a toxaphene spray or dip for parasite control. In this case, do not feed toxaphene treated plants within 6 weeks of slaughter.

With heptachlor, do not graze dairy animals. Do not graze animals being finished for slaughter within 90 days following treatment. With malathion, do not graze animals within 7 days of treatment.

## SPRAYING OTHER FARM LANDS

Land not in crops, hay, or pasture includes alfalfa seed fields, field margins, roadsides, wastelands, and conservation reserve acreages.

Aldrin—2 to 4 ounces of actual ingredient per acre.

Dieldrin—1 to 2 ounces of actual ingredient per acre.

Heptachlor—2 to 4 ounces of actual ingredient per acre.

Chlordane— $\frac{1}{2}$  to 1 pound of actual ingredient per acre.

Toxaphene—1 to 1 $\frac{1}{2}$  pounds of actual ingredient per acre.

Do not spray alfalfa seed fields while in bloom because of the danger to bees working in the field. If it is necessary to spray during the bloom period, apply

Table 1.  
Formulations of Insecticides and Amounts to Use per Acre

Material	Formulation	Crop	Amount to use per acre
Aldrin	2 lbs. per gal. emulsifiable conc.	Corn, sorghum small grain	$\frac{1}{2}$ to 1 pint
		Soybeans	$\frac{1}{2}$ pint
		Soil bank, margins, alfalfa seed fields, pastures, ranges	$\frac{1}{2}$ to 1 pint
	4 lbs. per gal. emulsifiable conc.	Corn, sorghum small grain	$\frac{1}{4}$ to $\frac{1}{2}$ pint
		Soybeans	$\frac{1}{4}$ pint
		Soil bank, margins, alfalfa seed fields, pastures, ranges	$\frac{1}{2}$ to 1 pint
Dieldrin	1 $\frac{1}{2}$ lbs. per gal. emulsifiable conc.	Corn, sorghum small grain	$\frac{1}{2}$ to $\frac{3}{4}$ pints
		soil bank, margins, alfalfa seed fields	
		Soybeans	$\frac{1}{4}$ to $\frac{1}{2}$ pints
		Alfalfa, clover (forage)	$\frac{1}{4}$ to $\frac{1}{2}$ pints
Chlordane	4 lbs. per gal. emulsifiable conc.	Soil bank, margins, alfalfa seed fields	1 to 2 pints
	8 lbs. per gal. emulsifiable conc.	Soil bank, margins, alfalfa seed fields	$\frac{1}{2}$ to 1 pint
Heptachlor	2 lbs. per gal. emulsifiable conc.	Pastures, ranges	$\frac{1}{2}$ to $\frac{3}{4}$ pints
		Soil bank, margins, alfalfa seed fields	$\frac{1}{2}$ to 1 pint
Malathion	5 lbs. per gal. emulsifiable conc.	Alfalfa, clover (forage)	1 $\frac{1}{2}$ to 2 pints
		Pastures, ranges	1 $\frac{1}{2}$ to 2 pints
Toxaphene	6 lbs. per gal. emulsifiable conc.	Corn, sorghum small grain soybeans, pastures, ranges, soil bank, margins, alfalfa seed fields	1 $\frac{1}{2}$ to 2 pints

toxaphene from 7 p.m. to 7 a.m. when the bees are not working.

## YARD AND GARDEN INFESTATIONS

Protect yards and gardens by spraying or dusting the margins to kill grasshoppers before they move in. Do not treat edible vegetables with aldrin, dieldrin, chlordane, heptachlor, or toxaphene in a way which would leave harmful residues. Malathion at 1 to 1 $\frac{1}{2}$  pounds per acre can be used on gardens, but wait 7 days before eating any above-ground parts.